AL.2.2006-16
University of Alberta Library
0 1620 3420146 5

Module 3

English Language Arts 7

Think Outside the Box

Learning Technologies Branch

Alberta EDUCATION

Digitized by the Internet Archive
in 2017 with funding from
University of Alberta Libraries

https://archive.org/details/englishlanguagea03albe_5

Module 3

English Language Arts 7

Think Outside the Box

IMAGE CREDITS

All images in this courseware were created by or for Alberta Education unless noted below or in subsequent lesson Image Credits.

Cover: *left and right* Lisa Zador/Artville/Getty Images; **Title page:** *left and right* Lisa Zador/Artville/Getty Images; **Welcome page:** *right* Lisa Zador/Artville/Getty Images; **Contents pages:** *centre background* Lisa Zador/Artville/Getty Images; *centre images* Image Club Clip Art/Getty Images; **Page 6:** *right* Eyewire Collection/Getty Images; **Pages 6 and 7:** *centre background* Lisa Zador/Artville/Getty Images; *centre images* Image Club Clip Art/Getty Images; **Page 8:** Brand X Pictures/Getty Images; **Page 28:** Photodisc/Getty Images; **Page 29:** Photodisc/Getty Images; **Page 57:** Photodisc/Getty Images; **Page 58:** Brand X Pictures/Getty Images

All other image credits in this resource constitute a continuation of this copyright page.

English Language Arts 7
Module 3: Think Outside the Box
Student Module Booklet
Learning Technologies Branch
ISBN 0-7741-2636-1

The Learning Technologies Branch acknowledges with appreciation the Alberta Distance Learning Centre and Pembina Hills Regional Division No. 7 for their review of this Student Module Booklet.

This document is intended for	
Students	✓
Teachers	✓
Administrators	
Home Instructors	✓
General Public	
Other	

You may find the following Internet sites useful:

- Alberta Education, **http://www.education.gov.ab.ca**
- Learning Technologies Branch, **http://www.education.gov.ab.ca/ltb**
- Learning Resources Centre, **http://www.lrc.education.gov.ab.ca**

Exploring the electronic information superhighway can be educational and entertaining. However, be aware that these computer networks are not censored. Students may unintentionally or purposely find articles on the Internet that may be offensive or inappropriate. As well, the sources of information are not always cited and the content may not be accurate. Therefore, students may wish to confirm facts with a second source.

Copyright © 2005, Alberta Education. This resource is owned by the Crown in Right of Alberta, as represented by the Minister of Education, Alberta Education, 10155 – 102 Street, Edmonton, Alberta, Canada T5J 4L5. All rights reserved.

No part of this courseware may be reproduced in any form, including photocopying (unless otherwise indicated), without the written permission of Alberta Education. This courseware was developed by or for Alberta Education. Third-party content has been identified by a © symbol and/or a credit to the source. Every effort has been made to acknowledge the original source and to comply with Canadian copyright law. If cases are identified where this effort has been unsuccessful, please notify Alberta Education so corrective action can be taken.

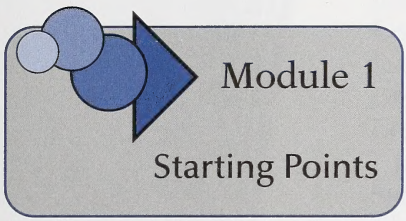
THIS COURSEWARE IS NOT SUBJECT TO THE TERMS OF A LICENCE FROM A COLLECTIVE OR LICENSING BODY, SUCH AS ACCESS COPYRIGHT.

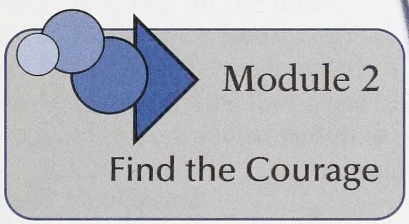
UNIVERSITY LIBRARY
UNIVERSITY OF ALBERTA

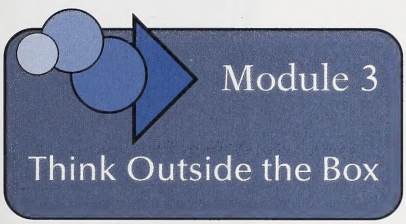
Welcome to Module 3 of

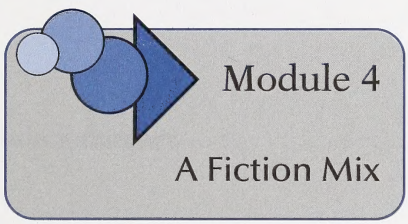
English Language Arts 7

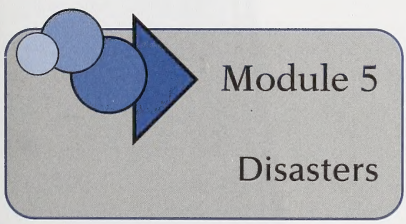
There are seven modules in this course. It is recommended that you work through the modules in order because the concepts and skills introduced in one module will be reinforced, extended, and applied in later modules.

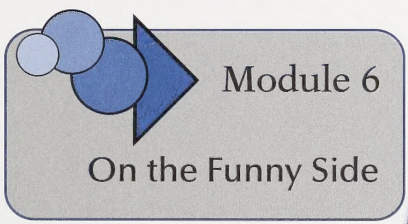


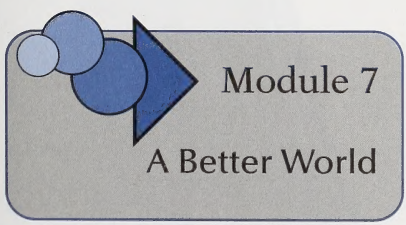






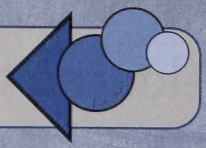




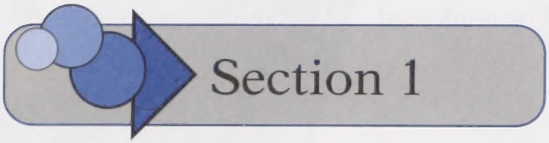


Module 1 contains general information about the course components, additional resources, icons, assessment, and strategies for completing your work. If you do not have access to Module 1, contact your teacher to obtain this important information.

Contents



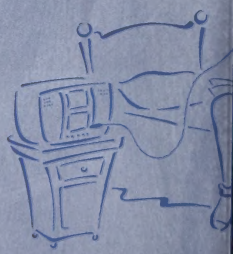
Module Overview 6

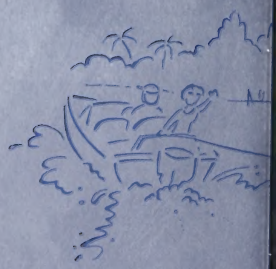


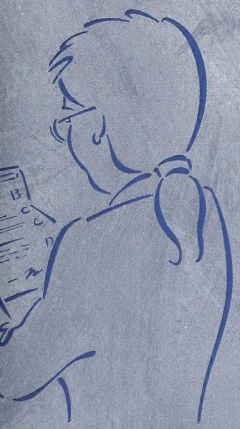
Creativity and Artists

Lesson 1: "Photographer at Play" 9
Lesson 2: "A Collaboration with Nature" 18
Lesson 3: "A Different Drummer" 24

Section 1 Conclusion 28







Section 2

Innovation and Inventors

Lesson 1: "A Spider for the Bones" 30
Lesson 2: "Cyberspace Sam" 37
Lesson 3: "Eureka! We've Done It!" 44
Lesson 4: "Inventively Female" 49
Lesson 5: "How to Conduct Research" 53

Section 2 Conclusion 57

Module Summary 58

Module Overview

Think Outside the Box

You have probably heard the expression *think outside the box*. What does it mean? How did the expression originate?

To think outside the box means to think creatively—be innovative. The expression came about as a result of a demonstration that was popular in business seminars in the 1970s and 1980s. People at these seminars were asked to solve the following puzzle: Connect with four straight lines nine dots arranged in a square grid. The lines must be drawn continuously without lifting the pen from the paper.

Can you solve the problem? Here is a clue. Most people who try to solve this puzzle fail because they assume the lines they draw must remain within the grid. In order to solve the problem, you must realize that you can draw the lines outside the confines of the box. In other words, you must think outside the box.

Think outside the box is the theme of this module. Here you will read about many innovative and creative people. In Section 1 you will explore artists. In Section 2 you will focus on inventors.

Module 3: Think Outside the Box

Section 1
Creativity and Artists

Section 2
Innovation and Inventors

Assessment

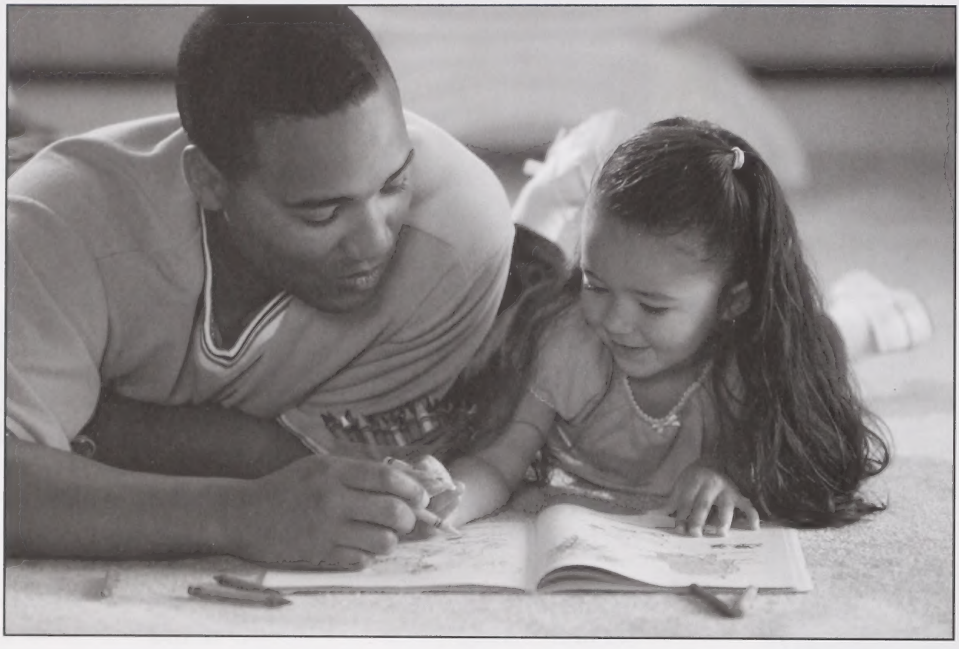
Your mark will be determined by your work in the Assignment Booklets. In this module, you are expected to complete two section assignments and a final module assignment. The mark distribution is as follows:

Assignment Booklet 3A	
Section 1 Assignment	30 marks
Assignment Booklet 3B	
Section 2 Assignment	47 marks
Final Module Assignment	23 marks
Total	100 marks

Be sure to check with your teacher to see whether this mark allocation is valid for you. Some teachers like to include other reviews and assignments.

Section 1

Creativity and Artists



Have you ever watched children colour in a colouring book? Smaller children ignore the lines and scribble enthusiastically all over the page. However, older children are usually careful to colour within the lines.

Not everyone thinks of colouring inside the lines as a good thing. Some people view the lines of the colouring book as limits and boundaries that restrict spontaneity and creativity. They question why adults try so hard to make children follow rules, to conform—to do the same thing, at the same time, in the same way. As a result, the expression *colour outside the lines* has become common. It means be creative, break conventions, and express your inner feelings in new and exciting ways.

In this section you will read about three exceptional individuals who are known for their creativity. In Lesson 1 you will investigate the photography of Jacques-Henri Lartigue. In Lesson 2 you will learn about the found-object sculptures of Andy Goldsworthy, and you also will explore found poetry. In Lesson 3 you will read about an amazing solo percussionist, Evelyn Glennie.

Lesson 1: "Photographer at Play"

Did you notice how stiff and solemn the people in this photograph are? In the early 1900s, sitting for a portrait was usually a painfully formal affair. Photography was not as advanced as it is today. It took quite a while to expose the plates of film, and the slightest movement would cause the picture to be blurry. Therefore, photographers generally asked portrait sitters to hold still for a few seconds and try not to blink or change their facial expressions.

Turn to pages 70 to 75 of *Crossroads 7* and read the article "Photographer at Play." This article explains how Jacques-Henri Lartigue (1894–1986) revolutionized the photography of the era with his unusual, playful images. Notice the headings the author uses to help organize the article. Pay close attention to the photographs and their captions. Jacques-Henri Lartigue took most of the photographs in this article when he was 10 or 11 years old. Put any unfamiliar words you encounter into your vocabulary log.

1. The first part of the article, up to the heading "Innovations," gives the reader some background information on Jacques-Henri Lartigue.

   a. When and where was he born?

b. Why was the era in which he grew up exciting?

c. What was the Lartigue family like?

d. How did Jacques-Henri learn photography?

e. What factors in Jacques-Henri's life made it possible for him to pursue his photography so enthusiastically?

2. The middle part of the article, up to the heading "Taking a Picture," discusses Lartigues's innovative approach to photography. How were Lartigue's photographs different from others taken in his era?

3. The last part of the article discusses the creative process that Lartigue used to get the perfect photograph. What was one of the planning strategies that Jacques-Henri Lartigue used?

Compare your responses with those on page 16.

Since the invention of the camera, photography has played an important role in people's lives. What would a holiday, wedding, or family reunion be like without snapshots?

For some people, photography is an art form and an effective medium for the expression of ideas and emotions.

To review basic photographic techniques, read pages 163 to 166 of the *English Language Arts Handbook*. Notice that the subheadings Distance, Camera Angles, Lighting, Colour, and Blurring are used to organize the information.

4. Identify each of the following six photographs as a long shot, medium shot, or close-up shot. Also identify each as a high-angle shot, low-angle shot, or eye-level shot.

a.

b.

c.

d.

e.

f.

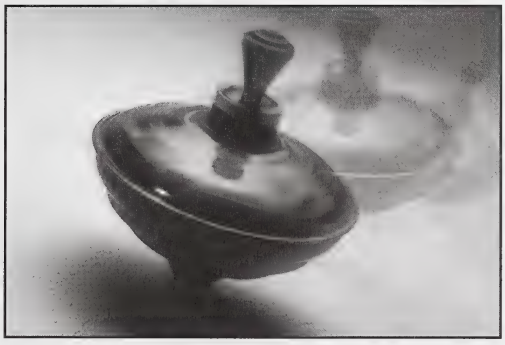
Compare your responses with those on page 16.

Double Exposures

Sometimes photographers deliberately use a double exposure or even multiple exposures to create special effects. In order to take a double exposure, photographers keep the film in the camera from advancing. Then they take another picture on top of the first one. This is the technique that Lartigue used in the photo on page 72 of *Crossroads 7*.

5. What effect is created in each of the following photographs?

a.



b.

Compare your responses with those on page 16.

Action Photography

In this part of the lesson, you will take a closer look at action photography. Photographers deal with motion in two basic ways—freezing the action or creatively blurring the background (or the subject). Lartigue used the technique of freezing the action in the shot of his cousin Bichonnade on page 73 of *Crossroads 7* and in the shot of the diver on page 75 of *Crossroads 7*. You also saw examples of blurring in the *English Language Arts Handbook*.

6. Examine the following photographs of bike races. What different effects do freezing the action and intentional blurring create in these two photographs?

a.

b.

Compare your responses with those on page 17.

Portfolio Item 3A

Take some innovative photographs. Before you start photographing, try sketching the pictures you would like to capture.

Try experimenting with action photography. If your camera allows you to adjust the **shutter speed**, you can try different shutter speeds and keep notes about them. Then look at your pictures and your notes to see which shutter speeds produced the results you like best. To freeze most sports action, use a shutter speed of 1/1000 or faster. To blur the action, use a shutter speed of 1/15 or slower.

shutter speed: the length of time (in a fraction of a second) that a camera's shutter remains open

If you have an automatic camera, you will not be able to adjust the shutter speed. Instead, you must rely on the proper film. Films are rated by their film speed, expressed as an **ISO-speed number**. A faster film (ISO 400 or above) will make your automatic camera use the faster shutter speed needed to freeze the action. A slower film (less than ISO 100) will make your automatic camera use the slower shutter speed needed to capture the blur.

ISO-speed number: a number, established by the International Standards Organization, that indicates a photographic film's sensitivity to light

In addition to selecting the correct shutter speed or film, you can use a special technique to blur the action. Follow the action with your camera and press the shutter button while still moving the camera. Your subject will be sharp, but the background will blur, indicating speed.

Choose three of your best photographs, and for each write a brief report explaining how you planned and took that photograph.

Go to page 1 of Assignment Booklet 3A and respond to questions 1 to 3 of Section 1.

In this lesson you explored photography. In the next lesson you will examine sculpture.

Glossary

ISO-speed number: a number, established by the International Standards Organization, that indicates a photographic film's sensitivity to light

shutter speed: the length of time (in a fraction of a second) that a camera's shutter remains open

Suggested Responses

1. **a.** Jacques-Henri Lartigue was born in 1894 in France.

   b. The era was exciting because it was a time when many remarkable inventions were being marketed. The inventions included automobiles, airplanes, and cameras.

   c. The Lartigue family was a large, wealthy, fun-loving, and inventive family. They had the time, money, and creative energy to pursue leisure-time activities such as building go-carts, launching watercraft in their swimming pool, flying hot-air balloons, and making their own airplanes.

   d. Jacques-Henri Lartigue learned photography from his father, who was an amateur photographer.

   e. Because his family members were wealthy and interested in a variety of leisure-time activities, they supported his interest and paid for his hobby.

2. Unlike other photographers of his era, Jacques-Henri did not take posed photographs. He especially enjoyed taking pictures of people in motion and things moving fast.

3. Jacques-Henri Lartigue drew sketches of the photographs he planned to take.

4. **a.** This photograph is a high-angle, long shot.
   b. This photograph is a low-angle, medium shot.
   c. This photograph is an eye-level, close-up shot.
   d. This photograph is a low-angle, medium shot.
   e. This photograph is a high-angle, medium shot.
   f. This photograph is an eye-level, close-up shot.

5. **a.** The multiple exposures give the impression that the top is moving across the floor.

   b. The double exposure gives the impression that a spirit is in the tree. The man's face seems to be textured like the bark. His arms seem to be roots.

6. **a.** Freezing the action in a photograph gives the viewer the opportunity to notice finer details, such as the body positions of the cyclists and the expressions on their faces.

   b. Blurring helps create a sense of the speed of the cyclists.

Image Credits

All images in this lesson were created by or for Alberta Education with the following noted exceptions:

Page

9 © 2003–2004 www.clipart.com
10 PhotoDisc Collection/Getty Images
11 **all:** Copyright © 2004 Alberta Education and its licensors. All rights reserved.
12 **all:** Copyright © 2004 Alberta Education and its licensors. All rights reserved.
13 **top:** Steve Allen/Brand X Pictures/Getty Images
bottom: Jeff Burke/Elaine Triolo/Brand X Pictures/Getty Images
14 **both:** PhotoDisc Collection/Getty Images
15 **bottom:** Photodisc/Getty Images

Lesson 2: "A Collaboration with Nature"

Have you ever been to New York and visited the Statue of Liberty? France presented this famous sculpture to the United States on July 4, 1884. Because the Statue of Liberty is 92 metres high, you can see it from a far distance. You can also travel by ferry to look at this sculpture more closely. In fact, you can take an elevator up 12 stories to the top of the Statue of Liberty's pedestal. Then you can climb 162 steps and peer out of the view windows in the Statue of Liberty's crown.

casting: a process in which a melted-down metal or other liquid substance is poured into a mould to harden and create a sculpture

modelling: a process in which a soft, pliable material such as clay or papier-mâché is built up and shaped to create a sculpture

carving: a process in which a solid material such as stone or wood is cut or chipped away to create a sculpture

Frédéric-Auguste Bartholdi, the sculptor of the Statue of Liberty, created it from copper by **casting**. Two other traditional methods for making sculptures are **modelling** and **carving**.

Modelling

Carving

Portfolio Item 3B

Photograph some sculptures in your community and photocopy or cut out pictures of other sculptures from magazines, newspapers, and the Internet. Try to obtain a variety of sculptures that were made by casting, modelling, and carving. Next, put together a small bulletin board or scrapbook to show a variety of examples of sculptures. Be sure to add captions to explain the sculptures.

In this lesson you will read about Andy Goldsworthy, an innovative British artist. Goldsworthy assembles temporary sculptural pieces from natural materials and then photographs the sculptures.

Turn to pages 105 to 107 of *Crossroads 7* and read the article "A Collaboration with Nature." Pay close attention to the photographs and their captions. Put any unfamiliar words you encounter into your vocabulary log.

1. In what way are Goldsworthy's sculptures different from most sculptures?

2. In what way are Goldsworthy's captions different from most captions?

Compare your responses with those on page 23.

Journal Entry 3A

Respond to the photographs of Goldsworthy's sculptures by answering the following questions:

- What shapes or patterns are most prominent in each piece of sculpture shown in the article?
- Do the sculptures make you see nature in a different way? Explain.
- Do the captions add to your appreciation of the sculptures?
- Which piece do you like best? Why?

Found-Object Sculpture

found-object sculpture: a sculpture created from common objects not normally considered to be artistic

Andy Goldsworthy's sculptures are sometimes called **found-object sculptures.**

American artist Deborah Butterfield also makes found-object sculptures. She has created many sculptures of horses using the following found materials: barbed wire, pipes, fencing, and corroded scraps of metal. Butterfield welds the materials together.

You can find photographs of Butterfield's sculptures on the Internet. Use the Google Image search engine and the key words *Deborah Butterfield* and *horse*.

http://www.google.com/imghp

Portfolio Item 3C

Create one or more sculptures using found objects. Then photograph the sculptures and write captions for them.

Found Poems

found poem: words found in a prose context and broken into lines to create a poem

You can create **found poems** from something you hear or read, in much the same way artists create found-object sculptures.

Following is an example of how one student found a poem in a newspaper article:

Why don't fish get electrocuted when lightning strikes a lake?

Since water is a very good
conductor, you would think
that fish would get zapped
when lightning hits the water.
In fact, they don't for that
very same reason. Water is
such a good conductor that
the electricity stays on the
surface and disperses instead
of penetrating.

So, when lightning hits the
water, the current zips across the
surface in all directions. And if
you're swimming anywhere in
the vicinity, it'll probably hit you.
Below the surface, the fish are
generally spared . . . .

[1]

[1] Material reprinted with the express permission of: "Global Television," a CanWest Partnership.

Following is the student's found poem:

Why don't fish get electrocuted?

When lightning strikes a lake,
electricity disperses,
zips across the surface.
Below
the fish are spared.

For more examples of found poems, visit the following web pages to view some of the found poems created by Karen J. Hatzigeorgiou:

http://karenswhimsy.com/alteredbooks/cup/hummer.htm

http://karenswhimsy.com/alteredbooks/cup/butterflies.htm

http://karenswhimsy.com/alteredbooks/cup/water.htm

http://karenswhimsy.com/alteredbooks/cup/birdsong.htm

Author Bruce Lansky, author of *If Pigs Could Fly*, enjoys writing funny found poems. Read the following article to learn the inspiration behind some of his found poems:

How to Write Funny Found Poem

by Bruce Lansky

What fun it is to "find" a poem. I'm not referring to a poem that you can find in a book or on a tombstone; I'm referring to a poem whose pieces you find while driving in a car, watching TV, or choosing a flavor at Baskin-Robbins.

For example, if you go for a ride in your car, you might find some road signs that you can rearrange to tell a little story. Here are two I found on a recent trip.

Where's the Hospital Zone When You Need It?

Men Working
Slow
Weak Shoulders

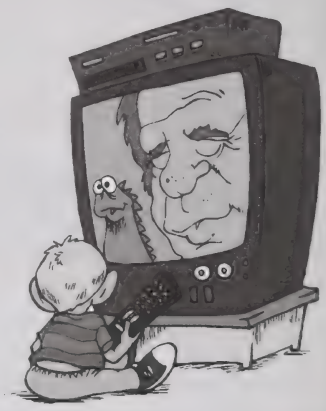
Don't Stop At This Restaurant

Next Exit
Taco Bell
Food
Gas

It's possible to fracture a TV news broadcast, too. Here's a poem I wrote based on that premise; it's published in *If Pigs Could Fly.*

Out of Control

"The president will come to town . . ."
"The price of beans is coming down . . ."
"I'll love you till the end of time . . ."
"But shooting ducks should be a crime . . ."
"We've never had a better sale . . ."
"We'll have to break them out of jail . . ."
"The Pope arrived to lead the prayers . . ."
"The Dallas Cowboys beat the Bears . . ."
"The temperature is three below . . ."
"These vitamins will help you grow . . ."
What's going on? Well, bless my soul!
Baby's got the remote control.



[1]

3. Explain the humour in the way Bruce Lansky combined the road signs.

4. Explain the surprise twist in "Out of Control."

Compare your responses with those on page 23.

Go to page 4 of Assignment Booklet 3A and respond to questions 4 and 5 of Section 1.

In this lesson you read about an artist who thinks outside the box, or colours outside the lines, and creates found-object sculptures. You also explored found-poems. In the next lesson you will read about another innovative artist.

[1] Bruce Lansky, "How to Write Funny Found Poem," n.d., <http://www.poetryteachers.com/poetclass/lessons/funnyfound.html> (16 August 2004). Reproduced by permission of Meadowbrook Press.

Glossary

carving: a process in which a solid material such as stone or wood is cut or chipped away to create a sculpture

casting: a process in which a melted-down metal or other liquid substance is poured into a mould to harden and create a sculpture

found-object sculpture: a sculpture created from common objects not normally considered to be artistic

found poem: words found in a prose context and broken into lines to create a poem

modelling: a process in which a soft, pliable material such as clay or papier-mâchè is built up and shaped to create a sculpture

Suggested Responses

1. Most sculptures are made to last; Goldsworthy's sculptures are temporary. Most sculptures are made by modelling, carving, or casting methods; Goldsworthy's sculptures are assembled from materials found in nature.

2. Most captions are written in a prose style; Goldsworthy's captions are written in the style of poetry.

3. Bruce Lansky combines the road signs in an unexpected way to create humour. "Where's the Hospital Zone When You Need It?" suggests that the men working are slow and have weak shoulders. "Don't Stop At This Restaurant" suggests that eating at Taco Bell will give you gas.

4. The poem "Out of Control" has a surprise twist at the end. The reader realizes that the baby has the remote control and the beginning lines of the poem are bits of different TV programs.

Image Credits

All images in this lesson were created by or for Alberta Education with the following noted exceptions:

Page

18 **top:** PhotoDisc Collection/Getty Images
bottom, both: © 2003–2004 www.clipart.com
19 Photodisc/Getty Images
21 **both:** © 2003–2004 www.clipart.com
22 **top:** © 2003–2004 www.clipart.com
bottom: Photodisc/Getty Images

Lesson 3: "A Different Drummer"

Have you ever played a percussion instrument? In this lesson you will read the article "A Different Drummer" and learn about Evelyn Glennie, a solo percussionist.

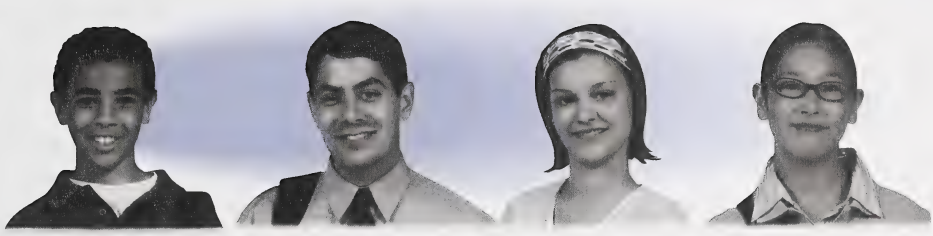
1. Name some famous percussionists. Do you think a solo percussionist would find it easy or hard to attract an audience? Explain.

Compare your response with the one on page 27.

Turn to page 88 in *Crossroads 7* and read the profile "A Different Drummer." Put any unfamiliar words you encounter into your vocabulary log.

You may not recognize all the percussion instruments mentioned in the article.

- A marimba and a vibraphone are instruments similar to a xylophone.
- Congas and bongos are both types of drums played with the hands. Conga drums are long, tapered or barrel-shaped drums used in pairs or individually. Bongo drums are pairs of small, connected drums.
- Cymbals are brass plates that produce a brilliant clashing tone when they are struck together or struck with a stick.



Mr. Chalifoux: Think about the title of the article "A Different Drummer." Why did the writer choose this title?

Kofi: The article is about a deaf woman who makes her living as a solo percussionist. She's a different drummer.

Mr. Chalifoux: Right, but the phrase *a different drummer* also has another meaning. Have you ever heard this phrase used in another sense?

Sharleen: Isn't it part of a famous quotation that says "Some people march to the beat of a different drummer"?

Mr. Chalifoux: Yes, it's from the writings of Henry David Thoreau. He lived from 1817 to 1862. What does it mean to *march to the beat of a different drummer?*

Tawnee: I think it means to be different, to act independently.

Mr. Chalifoux: That's right. The phrase refers to someone who is an innovator, someone who is unconventional in thought or action.

2. In what way is Evelyn Glennie an innovator?

3. Evelyn Glennie's husband states, "If the audience is only wondering how a deaf musician can play percussion, then Evelyn feels she has failed as a musician." With a partner or in a small group, discuss why Evelyn might feel this way.

4. The author of the article states that Evelyn has the ability "to push the boundaries of percussion music." What does the expression *to push the boundaries* mean?

Compare your responses with those on page 27.

To learn more about Evelyn Glennie, check out her website:

http://www.evelyn.co.uk

You can listen to some of Glennie's music at the following website:

http://www.mp3.com/Evelyn-Glennie/artists/21863/summary.html

Journal Entry 3B

Evelyn Glennie feels music through vibrations instead of hearing music through her ears. She plays barefoot so she can feel the vibrations more effectively. In your journal, make a list of situations in which you have felt sound vibrations. Following are two examples:

- You are standing by the side of the road and a large truck goes by. You feel the vibrations.
- Music from a stereo is playing loudly. The music makes the floor shake. You feel the vibrations.

Portfolio Item 3D

Evelyn Glennie inspires everyone who hears her. Write a profile of someone who inspires you.

Go to page 6 of Assignment Booklet 3A and respond to questions 6 and 7 of Section 1.

In this lesson you read the profile of an inspirational musician.

Suggested Responses

1. Responses will vary. Most bands have a drummer. One famous drummer is Ringo Starr of the Beatles. Solo percussionists are very rare; their instruments are usually considered to be part of a band, not a solo act. Solo percussionists might find it hard to earn a living.

2. Evelyn Glennie is an innovator for several reasons. She is a solo percussionist, which is very uncommon. Because very little music has been written for solo percussion, she works closely with composers who write pieces especially for her. As well, she is profoundly deaf, but she has composed music for TV programs and commercials.

3. Evelyn Glennie likely feels this way because she considers herself a musician first. She just happens to be deaf. She doesn't want people to attend her concerts out of curiosity but rather out of appreciation for her music.

4. The expression *to push the boundaries* means to be innovative—to experiment, bend the rules, and take risks.

Image Credits

All images in this lesson were created by or for Alberta Education with the following noted exceptions:

Page
24 © 2003–2004 www.clipart.com
25 **all:** Photodisc/Getty Images
26 Photodisc/Getty Images

Section 1

Conclusion

You have been exploring the idea of colouring outside the lines. You discovered that the expression is a metaphor for breaking rigid and needless rules and thereby freeing up creativity.

One example of an artist who dared to colour outside the lines is Pablo Picasso. Picasso was famous for his abstract portraits in which he sometimes placed the eyes, mouths, noses, and ears in unusual places. Picasso once said, "Every child is an artist. The problem is how to remain an artist after growing up."

In this section you thought about people like Picasso who dared to colour outside the lines. In Lesson 1 you investigated the photography of Jacques-Henri Lartigue. In Lesson 2 you learned about the found-object sculptures of Andy Goldsworthy, and you also explored found poetry. In Lesson 3 you read about an inspirational solo percussionist, Evelyn Glennie.

Section 2

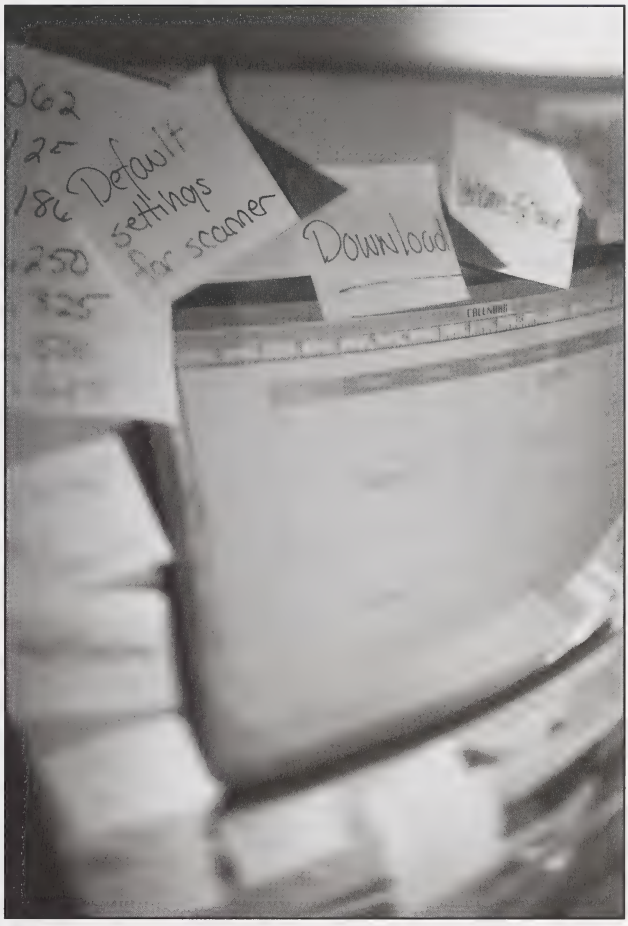
Innovation and Inventors

Did you know that inventions have been created for a variety of reasons?

Some inventions came about when their inventors discovered other uses for things. For example, the inventors of Post-it® Notes (yellow stickies), reported that their invention was the result of a failed adhesive experiment. They thought the adhesive was too weak to market, until they figured out that a weak adhesive had good uses too.

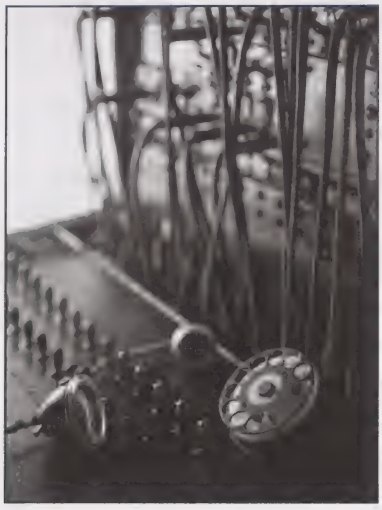
Some inventors set out to find better ways to do things. After Canadian Peter Lymburner Robertson injured his hand while demonstrating a slotted screwdriver, he designed the square-headed Robertson screwdriver in his spare time.

Some inventions were inspired by common everyday events. For example, George de Mestral had an idea while removing burrs from his pet's fur after walking in the woods in Switzerland. He realized he could use this principle to make a hook-and-loop fastener, which he called Velcro®.



In this section you will think about inventions and inventors. Maybe some of these stories will inspire you to become an inventor!

Lesson 1: "A Spider for the Bones"



Did you know that before automatic switches, all telephone calls were placed through operators? When a small light on a switchboard alerted an operator that a subscriber wanted service, the operator inserted an insulated electrical cable into a jack. This allowed the caller to speak to the operator and ask to be connected to a second person. The operator used another cord to plug into the second person's jack and then operated a key (a type of electrical switch) that connected ringing current to the second person's telephone. The operator listened for the person to answer and then disconnected to ensure the privacy of the call.

Some people in your community may remember a time when two or more families shared the same telephone line, which was called a party line. All the telephones on a party line would ring whenever there was a call for any one of them. Each party had a distinct combination of short and long rings to indicate that a call was for that house.

Today people can dial directly without the assistance of an operator, and most residences have private lines. Moreover, wireless technology enables people to communicate with cell phones, two-way pagers, and personal organizers that they can carry with them.

1. Name ten products or technologies that were invented in the twentieth century.

Compare your response with the one on page 36.

The following website has a list of twentieth-century inventions.

http://inventors.about.com/library/weekly/aa121599a.htm

Journal Entry 3C

Have there been any innovations in the twentieth century that you do not like? Comment on these in your journal.

Have you ever wondered what types of new products and technologies will be invented in the twenty-first century? In this lesson you will read about a group of Canadian junior-high students who participated in the ExploraVision Awards program. Students in this competition work in small groups to select a technology or an aspect of a technology relevant to their lives. They explore what the technology does, how it works, and how, when, and why it was invented. The students then project into the future what that technology could be like 20 years from now. Finally, they convey their vision to others through both a written description and graphics simulating web pages.

Turn to page 65 of *Crossroads 7* and read "A Spider for the Bones." Put any unfamiliar words you encounter into your vocabulary log.

Portfolio Item 3E

Imagine that you are a journalist who is writing an in-depth magazine article about these girls and their project. You have arranged to interview the girls so you can gather information for your article. Draft ten questions that you would ask them. Give each question a specific focus so the response will provide the details you need.

Journal Entry 3D

In the article you just read, the girls demonstrated successful group work. Write a response in your journal about group work. Use the following questions to guide your response:

- Would the girls have achieved as much working individually? Why or why not?
- Think about an effective team that you have been a part of. What made your team work well? What could your team have done better?

Did you know that children have invented many things? Following are some examples:

- Louis Braille was 12 years old in 1821 when he invented a tactile alphabet that enabled blind people to read. He published his first Braille book in 1829 at the age of 15.
- Chester Greenwood was 15 years old in 1873 when he invented earmuffs.
- Robert Patch was only 6 years old when he received a **patent** in 1963 for a toy truck that could be changed into different types of trucks.
- Frank Epperson invented the Popsicle® when he was 11 years old in 1905. It was 18 years later before he applied for and received a patent for his invention, the Epsicle ice pop. His children renamed it the Popsicle.
- Jeanie Low was 11 years old in 1992 when she received a patent for the Kiddie Stool—a fold-up stool that fits under the sink so kids can unfold it, stand on it, and reach the sink on their own.
- Kathryn (K-K) Gregory was 10 years old in 1994 when she invented the fingerless gloves that she called Wristies.
- Krysta Morlan, who has cerebral palsy, was 16 years old in 1999 when she invented the therapeutic and recreational waterbike.
- Abbey Fleck invented the MAKIN BACON® dish, a device to cook bacon in the microwave, when she was 8 years old in 1992. Her invention cooks the bacon hanging up so the fat will drip into a drip tray.

patent: a document that gives an inventor the exclusive right to make, use, or sell an invention for a certain number of years in that country

Journal Entry 3E

In "A Spider for the Bones" the girls expressed the opinion that being young can be an advantage when it comes to inventing. Respond to this statement in your journal. Consider the following questions:

- What reasons do the girls give for this belief?
- Do you agree with this idea?
- What barriers or challenges do young people face if they want to get an invention of theirs patented and marketed?
- What could young people do to overcome these challenges?

Storyboards

storyboard: a series of sketches with captions that are used to plan a video production

Students taking part in the ExploraVision contest are expected to create several graphics simulating web pages. Turn to page 67 of "A Spider for the Bones" and see a graphic created by one of the girls in the article you have just read. This graphic is part of a **storyboard** for a video.

2. Answer the following questions about the graphic.

   a. What does the sketch illustrate?
   b. What does the caption under the graphic include?

Compare your responses with those on page 36.

Storyboards are helpful to the people who are filming a video. The captions for storyboards include directions for video and sometimes for audio. The video directions include information about shot types, camera angles, and lighting. The audio directions include information about music, dialogue, and sound effects.

Following is an example storyboard. It's from the commercial "Bundle Up" produced by Concerned Children's Advertisers to promote discussion on self-esteem, managing emotions, and peer support. Notice that this storyboard provides only video directions.

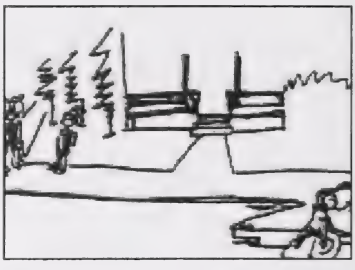
VIDEO
Camera follows mom as she runs to catch up with her son.

VIDEO
Still handheld, camera arrives on medium close-up of son. A vacant look on his face. The kids look on in the background.

VIDEO
Medium shot. The three other boys watch mom and son.

VIDEO
Cut back to close-up of boy. Mom is now wrapping scarf around his neck.

VIDEO
Mom leans in, gives son a kiss on the cheek, and then walks out of frame.



VIDEO
Wide shot of mom returning to stationwagon.

VIDEO
Medium shot of boy turning around to look at friends. He is in focus. Framed by other boy's shoulders. A bit blurry in the foreground.

[1] "Bundle Up," 2004 Concerned Children's Advertisers, used by permission.

Now that you've read the storyboard, watch Segment 10, "Bundle Up,"[1] on the *English Language Arts 7 Multimedia* CD.

3. How does the video clip compare to and differ from the storyboard?

Compare your response with the one on page 36.

Compound Words

A compound word is formed when two or more individual words are joined together to convey a single idea. Compound words may have three forms:

- the open form, such as *post office*
- the hyphenated form, such as *daughter-in-law*
- the closed form, in which the words are melded together, such as *firefly*

Remember also that a word can seem to consist of two or more smaller words but not actually be a compound word. For example, *carpet*, *knowledge*, and *childhood* are not compound words.

For more information on compound words, turn to page 10 in your *English Language Arts Handbook*.

4. Two examples of compound words used in "A Spider for the Bones" are *storyboards* and *award-winning*. List ten other compound words found in this article.

Compare your response with the one on page 36.

Go to page 1 of Assignment Booklet 3B and respond to questions 1 to 3 of Section 2.

In this lesson you thought about research, teamwork, storyboards, and compound words. In Lesson 2 you will read "Cyberspace Sam," a story about a boy who thinks outside the box.

[1] "Bundle Up," 2004 Concerned Children's Advertisers, used by permission.

Glossary

patent: a document that gives an inventor the exclusive right to make, use, or sell an invention for a certain number of years in that country

storyboard: a series of sketches with captions that are used to plan a video production

Suggested Responses

1. Answers will vary. Following are some possible responses:

airplane	automobile	cellular phone
computers	contact lenses	insulin
neon lights	penicillin	radio
rocket	snowblower	snowmobile
television	tractor	Velcro® hook-and-loop fastener

2. a. The sketch illustrates a shot for the video. In this shot, scientists in lab coats are standing on a stage and giving a presentation. One scientist is holding a pointer and talking about a slide that illustrates their invention, WEBS (woven engineered bone system). The people in the audience are reporters and photographers for newspapers.

   b. The caption explains what the scientist is saying in this shot.

3. Most of the shots on the video clip compare to the storyboard. However, the storyboard does not include the initial shots of the mother in the car. Also, in the storyboard the mother wraps a scarf around the boy's neck. In the video clip the mother brings the boy a jacket.

4. Other compound words used in this article include the following:

anyone	*anything*	*breakthrough*	*grandmother*
high-tech	*low-voltage*	*oversaw*	*red-hot*
self-directed	*someday*	*someone*	*something*
sometimes	*teenaged*	*three-dimensional*	*would-be*

Image Credits

All images in this lesson were created by or for Alberta Education with the following noted exceptions:

Page

30 **top:** Janis Christie and Steve Cole/Photodisc/Getty Images
centre: Photodisc/Getty Images

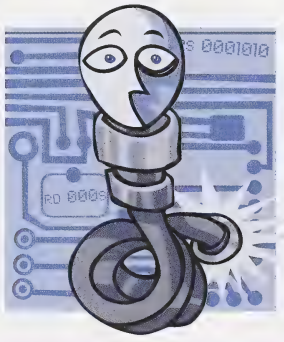
33 **centre:** © 2003–2004 www.clipart.com

35 Photodisc/Getty Images

Lesson 2: "Cyberspace Sam"

In this lesson you will read a short story called "Cyberspace Sam." What does the word *cyberspace* mean?

If you do not know the meaning of cyberspace, you may be familiar with other related compound words, such as cyber café, cyberwar, cyber-attack, cyberphobia, cyber terrorism, and cyber law. These compound words are made from the root word *cyber*, which means having to do with computers.



William Gibson (born 1948), a science-fiction writer from Vancouver, coined the word *cyberspace*. Cyberspace is the online world of computer networks. Cyberspace is not a physical place. It does not exist "within" the computer or data network. You can think of it as the mental space where people are when they are engaged in electronic communication.

1. The main character of "Cyberspace Sam" is Solitario Adolphus Muggins, nicknamed Sam. Why do you think he is called Sam?

Compare your response with the one on page 42.

Turn to page 92 of *Crossroads 7* and read the story "Cyberspace Sam." You will likely encounter several new words in this story. First, use context clues to figure out their meanings. Afterwards, confirm the meanings of these words by looking them up in a dictionary. Include the new words in your vocabulary log.

allusion: an indirect reference to something assumed to be familiar

2. Several **allusions** are made in the story.

   a. Sam's sister states that Sam's role model is Data. Who is Data?

   b. Sam's sister also makes reference to Nikes and Doc Martens. What are Nikes and Doc Martens?

c. Sam's father sings a couple of verses of "Davy Crockett." Who was Davy Crocket and what was the song about him?

3. Why does Sam's family plan a camping trip and take Sam along?

4. At the end of the story, Sam states, "If I had a cellular, we'd be out of here in no time." Explain why this statement is humorous.

Compare your responses with those on page 42.

Journal Entry 3F

In the story, Sam manages to save the day through knowledge that he gained on the Internet. In your journal write about a time in which you (or someone you know) saved the day or gained some advantage because of some bit of knowledge picked up on the Internet or in the media.

Stereotyped Characters

Television programs and comic strips sometimes feature stereotyped characters. For example, students may be depicted as popular kids, loners, leaders, nerds, brains, or jocks.

Because the time frame in television programs and comic books is too short to develop well-rounded characters, stereotyped characters are useful. Viewers or readers do not have to think about stereotyped characters. They understand a stereotyped character's role quickly and easily.

Stereotyped characters embody one or two qualities, ideas, or traits that can be readily described in a brief summary. They are sometimes called **flat characters**, **stock characters**, or **cardboard characters**.

5. Sam, Greg, and Carol could be described as stereotyped characters. In your notebook, copy the chart in question 2 on page 98 of *Crossroads 7*. Then complete the chart with evidence from the story.

6. In "Cyberspace Sam," Sam says, "There's manners on the Internet. You don't follow them, you get flamed." What does Sam mean when he says, "you get flamed"?

Compare your responses with those on page 43.

Internet Etiquette

In Module 2 you discussed Internet safety and chat lingo. Following are some points to keep in mind when communicating online:

lurk: monitor the messages in a discussion group without actually posting

- If you are new to a discussion group, look for and read the FAQ (Frequently Asked Questions) before you post messages there. You may also want to **lurk** for awhile and read several of the messages before posting one of your own.

- Keep your messages short and to the point.

- Include an appropriate title in the subject field. You will get more meaningful responses.

urban legend: a story that involves a recent incident, spreads quickly through hearsay, and is popularly believed to be true but is not

- Don't forward messages that warn people about some online or real-life peril. These warnings are usually hoaxes or **urban legends**.

- Don't send jokes and inspirational messages to everyone in your address book.

- Avoid typing your messages in all uppercase letters because IT LOOKS LIKE YOU'RE SHOUTING!

- Be careful with humour and sarcasm as misunderstandings can easily happen.

- Be polite when you are having a conversation online. Before you send an e-mail or respond to a discussion group posting, ask yourself, "Would I say this to the person's face?" If the answer is no, rewrite the message.

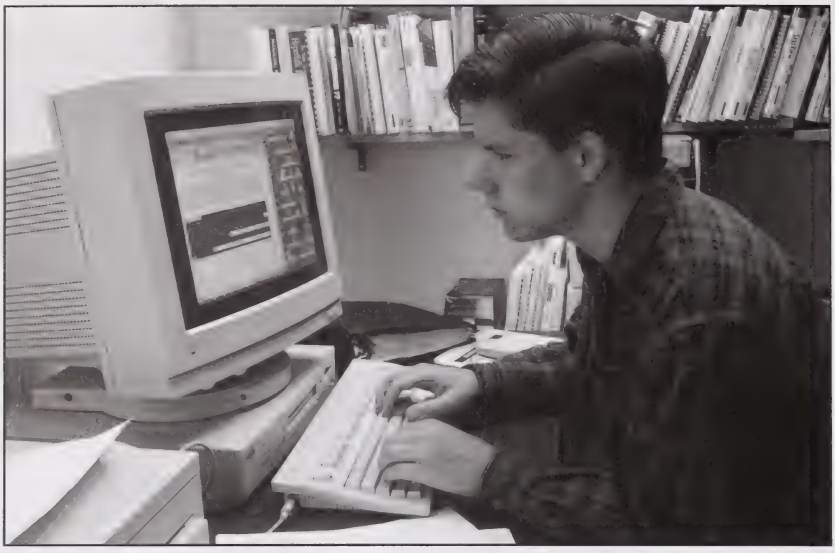
- When someone makes a mistake, be kind. If it's a minor error, you may not need to say anything. If you do decide to inform someone of a mistake, point it out politely, and preferably by private e-mail rather than in public.

flame war: a verbal dispute conducted on the Internet

- If you are flamed, do not respond. Commenting just makes the situation worse. **Flame wars** can get seriously out of hand.

Journal Entry 3G

In your journal, write about your online experiences. Have you posted something in a message forum and been flamed as a result? How did you deal with this experience?



The Internet has many positive benefits, but some parents worry that their teenagers are spending too much time e-mailing, chatting online, playing games, or surfing.

Journal Entry 3H

Do you think that Sam has been spending too much time on the Internet? Do you think Sam should be spending more time socializing with family and friends, taking part in other hobbies and activities, or exercising? What are some of the positive things Sam has learned from his time on the Internet?

Effective Communication

Journal Entry 3I

Sam's father says, "We need to open a dialogue with him." He means that he wants to communicate better with Sam. Do you think Sam's father succeeds? Why or why not? Explain.

Turn to question 3 on page 99 of *Crossroads 7*. Read the suggestions for communicating effectively.

Next, work with a partner and role-play a conversation in which Sam and his father communicate effectively. **Note:** In Assignment Booklet 3B you will be asked to provide a recording of this conversation.

Writing Tips

In an interview, W. D. Valgardson, the author of "Cyberspace Sam," gave the following writing tips:

> Two of the things I say to my students—I always begin my courses with this—"Write what you know, and write what you care about." And then, of course, there are always people that say—and they always do this for effect—"Write about what you DON'T know!" But people that say that are, I think, terribly dishonest, because they leave out the second part. And the second part is: "Go out and learn about it, and then write about it!"
>
> I don't know anything about . . . astronomy, but I could write a novel about an astronomer if I learned about it. You have to know about it, otherwise when you tell the story you'll make all kinds of errors . . . and people who have any knowledge will know you're a fool.
>
> The second half of what I say is "Write what you care about." Writing is about emotion more than thought; if you want thought, go to philosophy. If I don't care about something, how am I to get you to care about it? You're here because you care about writing. There's a whole bunch of people who AREN'T here because they don't care about writing. They care about soccer, baseball, or science. So if you care about something, then you have a chance of getting other people to care about it.[1]

Journal Entry 3J

Do you think that the author followed his own advice when he wrote "Cyberspace Sam"? In other words, did W. D. Valgardson write about something he knows and cares about? Support your opinion.

Go to page 4 of Assignment Booklet 3B and respond to questions 4 and 5 of Section 2.

[1] http://www.theclaremontreview.ca/tips.htm#wd

In this lesson you explored stereotyped characters, Internet etiquette, and effective communication. In the next lesson you will focus on Canadian inventors.

Glossary

allusion: an indirect reference to something assumed to be familiar

flame war: a verbal dispute conducted on the Internet

lurk: monitor the messages in a discussion group without actually posting

urban legend: a story that involves a recent incident, spreads quickly through hearsay, and is popularly believed to be true but is not

Suggested Responses

1. Sam is a nickname that was created by using the first letters of each of his names: Solitario Adolphus Muggins.

2. a. Data is a character that appeared in the television show *Star Trek: The Next Generation* and in some Star Trek movies. Data is an android, an advanced form of artificial life.

   b. Nike is a brand of running shoes. Doc Marten is a brand of leather shoes.

   c. Davy Crockett was a celebrated American hero, warrior, and backwoods statesman. In the 1950s, the television show *Disneyland* aired five episodes of "Davy Crockett." The episodes had a theme song that began like this:

      Born on a mountain top in Tennessee,
      Greenest state in the land of the free.
      Raised in the woods so he knew every tree,
      Killed him a bear when he was only three.
      Davy, Davy Crockett, King of the Wild Frontier.

3. Sam's family plans the camping trip because they think Sam is spending too much time on the Internet and they want to get him in touch with "real reality." They figure camping is a place where there is "no computer, no batteries, no disks, no programs, no e-mail, no cyberspace, no Internet, no Web."

4. This statement is humorous because of the unexpected twist at the end of the story. Sam's family wanted to get him away from technology, but in the end Sam saves the day by rescuing his father with knowledge he gained through technology. Sam innocently points out that technology (namely, a cell phone) would have been useful in this emergency.

5. Responses will vary. Following is a sample response.

Character	Stereotype	Evidence
Sam	computer nerd	Sam spends a lot of time on the Internet and constantly talks about things he has learned online. For example, when his father brings up dinosaurs at dinner, Sam names a website. At the beginning of the story when the family members tell where they are going, Sam says, "Cyberspace."
Greg	jock	Greg always wears white socks and plays six different sports. At the beginning of the story when the family members tell where they are going, Greg says, "To the schoolyard to shoot some baskets."
Carol	popular kid	Carol is concerned with her popularity. She worries that her friends will perceive Sam as a nerd and she will be ostracized. At the beginning of the story when the family members tell where they are going, Carol says, "To the mall with my friends."

6. To be flamed means that you have sent an e-mail to a group of people and in response you have received angry messages.

Image Credits

All images in this lesson were created by or for Alberta Education with the following noted exceptions:

Page

37 **top:** Photodisc/Getty Images
centre: © 2003–2004 www.clipart.com
39 2003–2004 www.clipart.com
40 Photodisc/Getty Images
42 **top:** Photodisc/Getty Images
bottom: © 2003–2004 www.clipart.com

Lesson 3: "Eureka! We've Done It!"

Many people believe that the American inventor Thomas Edison invented the electric light bulb. Contrary to public opinion, Thomas Edison neither invented the light bulb nor held the first patent to the modern design of the light bulb. Many scientists contributed to the development of the light bulb, but Canadians Henry Woodward and Matthew Evans were the first to patent their design for the light bulb in 1875. When Woodward and Evans found it impossible to raise financial support for the development of their invention, they sold their patent to Edison. Edison and his team of developers searched for an alternative filament material that would burn longer, and by 1880 they had a device that could last for over 1200 hours.

In this lesson you will examine Canadian inventors and inventions.

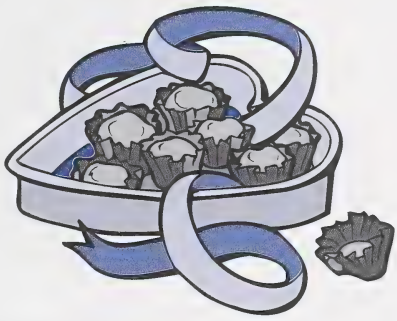
Turn to pages 78 to 80 of *Crossroads 7* and read "Eureka! We've Done It!" Then take the Canadian inventors quiz on page 81.

Journal Entry 3K

In your journal respond to questions 1.a., 1.b., and 1.d. on page 84 of *Crossroads 7*.

"Eureka! We've Done It!" mentions only a few Canadian inventions. Following are two more stories about Canadian inventions.

A Canadian chocolate factory, Ganong Brothers Ltd., is credited with introducing the first chocolate bar in 1910. The Ganong chocolate factory also invented the heart-shaped box to hold chocolates. It was originally introduced at Christmas in 1932, but it has become a symbol of Valentine's Day.



Dr. James A. Naismith, a Canadian from Ontario, invented the game of basketball.

It was called basketball because originally peach baskets were nailed to the wall of the gymnasium.

1. Many new words have been added to the English language as a result of Canadian inventions. Briefly explain each of the following products.

   a. canola
   b. Canadarm
   c. kerosene
   d. Muskol®
   e. Pablum®
   f. pacemaker

Compare your responses with those on page 47.

For more information on Canadian inventions, visit the following website:

http://inventors.about.com/library/weekly/aa090100a.htm

Turn to pages 82 and 83 of *Crossroads 7* and examine the time line of Canadian inventions. Notice the inventions are in chronological order.

You are probably more familiar with the simpler types of time lines used in social studies and mathematics. In these time lines, the information is displayed horizontally or vertically in a chart or graph.

2. Simplify the information shown on pages 82 and 83 of *Crossroads 7* by putting the inventions and the dates they were invented on a time line like the following:

3. Why is a time line a good way to present the history of a subject like inventions?

acronym: a word (such as *NATO*) formed from the initial letters of a phrase or from the letters of each major part of a word or phrase

4. IMAX® is an acronym. Research what the letters in IMAX® stand for.

5. Name five commonly used acronyms.

Compare your responses with those on page 48.

Journal Entry 3L

Re-examine the time line on pages 82 and 83 of *Crossroads 7*. The creator of this time line chose a variety of male and female inventors. In your journal, name the inventors you would have included on a time line of Canadian inventors, and support your choices.

The article you read in this lesson was called "Eureka! We've Done It!" Eureka comes from the Greek word *heureka*, which means *I have found (it)*. The word *eureka* came into the English language from the following famous story about Archimedes, an ancient Greek mathematician, physicist, and inventor.

One day the ruler, Hiero, presented Archimedes with a problem to solve. Hiero had given an artisan gold to produce a crown, but he suspected that the artisan had cheated him by substituting some of the gold with silver, a less-expensive metal. According to legend, Archimedes was perplexed at first by the problem. But the answer came to him when he got into his bath and saw the water overflow. He realized he could use water displacement to solve the problem. In delight, he leaped from the bath and ran through the streets crying, "Eureka! Eureka!"

Now you know why the word *eureka* is used to express triumph.

Journal Entry 3M

Have you ever had a similar eureka moment or "aha" experience, when the answer to a problem seemed to pop into your head? Write about the experience in your journal.

Go to page 5 of Assignment Booklet 3B and respond to question 6 of Section 2.

In this lesson you focused on Canadian inventors. In the next lesson you will focus on female inventors.

Glossary

acronym: a word (such as *NATO*) formed from the initial letters of a phrase or from the letters of each major part of a word or phrase

Suggested Responses

1. **a.** canola: a plant variety developed in Canada whose seeds are used to make cooking oil

   b. Canadarm: the Canadian-built robotic arm used on space shuttles

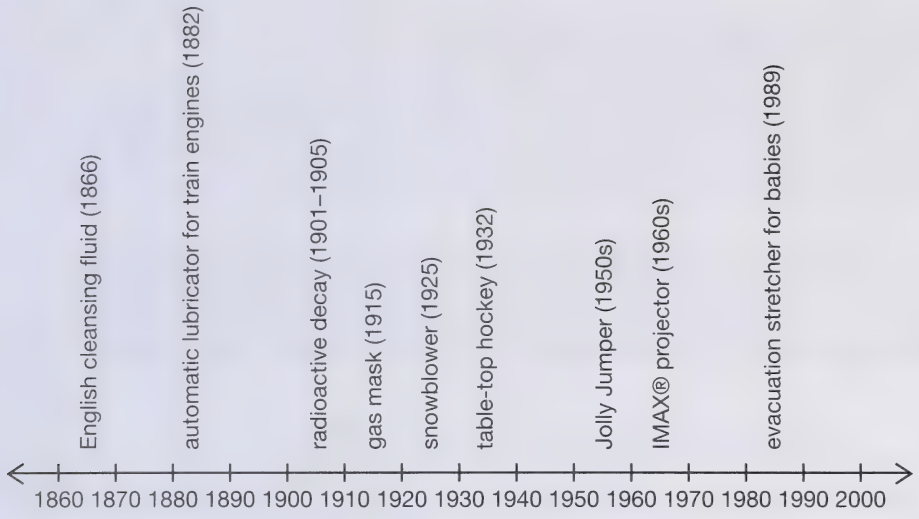
   c. kerosene: a flammable oil used for a fuel and as a solvent and thinner; invented by Dr. Abraham Gesner, a Canadian

   d. Muskol®: an insect repellant invented by Charlie Coll, an avid Canadian outdoorsman

   e. Pablum®: a cereal for infants developed by doctors at the Hospital for Sick Children in Toronto

   f. pacemaker: an electrical device for stimulating or steadying the heartbeat, invented by Dr. John A. Hopps, a Canadian

2.



3. A time line is a good way to present the history of a subject like inventions because the reader can quickly appreciate the order in time in which the inventions came about.

4. IMAX® stands for **Image Maximum**.

5. Some commonly used acronyms are

ATM (**A**utomated **T**eller **M**achine)
CIBC (**C**anadian **I**mperial **B**ank of **C**ommerce)
DQ (**D**airy **Q**ueen)
ISBN (**I**nternational **S**tandard **B**ook **N**umber)
KFC (**K**entucky **F**ried **C**hicken)
RBC (**R**oyal **B**ank of **C**anada)
TD (**T**oronto **D**ominion)
UPC (**U**niversal **P**roduct **C**ode)

Image Credits

All images in this lesson were created by or for Alberta Education with the following noted exceptions:

Page
44 © 2003–2004 www.clipart.com
45 **both:** © 2003–2004 www.clipart.com
46 © 2003–2004 www.clipart.com
47 Photodisc/Getty Images

Lesson 4: "Inventively Female"

Ms. Smith: How are inventors usually depicted in television shows and movies? Give me some examples.

Stefan: TV and movies tend to make fun of inventors. They are often portrayed as disorganized and nerdy. One example is Doc Brown in *Back to the Future*.

Mariko: I agree. The dad in *Honey, I Shrunk the Kids* is similar to Doc Brown. Both are absent-minded and excitable.

Rico: I agree too. Jasper Dale in *Road to Avonlea* and Professor Phillip Brainard in *Flubber* are also high-strung and scatterbrained.

Ms. Smith: Your examples of fictional inventors are all eccentric men, but these portrayals are stereotypes. In reality, inventors are men, women, and children who are problem solvers. Inventors are risk takers who are curious, highly motivated, resourceful, and hard working. They believe that there's always a better way to perform a task; they just have to find it. Moreover, they're willing to fail repeatedly just to succeed once.

Read "Inventively Female" on pages 100 to 102 of *Crossroads 7*. Be sure to include in your vocabulary log any unfamiliar words you encounter.

1. Turn to page 100 of *Crossroads 7* and review the bulleted list of early inventions by women.

   a. What do the early inventions on page 100 have in common?

   b. Make a time line of the inventions mentioned in this bulleted list.

c. Why did the scope of female inventions widen in the twentieth century?

d. In addition to the inventors mentioned in the bulleted list, what other female inventors are mentioned in the article?

Compare your responses with those on page 51.

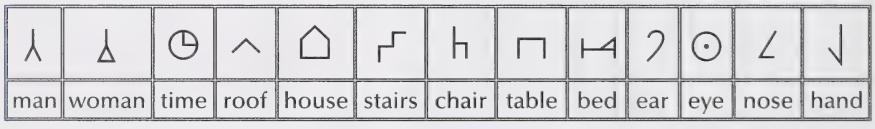
The article refers to The Women Inventors Project. This is a Canadian, non-profit, charitable organization working to increase the number of successful inventors and entrepreneurs in Canada, the United States, and internationally. The Women Inventors Project has a specific interest in encouraging girls and women to pursue careers in science, technology, engineering, and mathematics (STEM).

Turn to page 103 of *Crossroads 7* and read the document taken from the website of the Women Inventors Project. This document discusses a Canadian inventor, Rachel Zimmerman, who invented a new way to use Blissymbols.

Blissymbols: simple pictorial symbols that can be read in all languages—without translation

DID YOU KNOW?

Charles K. Bliss (1897–1985) originally developed Blissymbols to allow communication between people who do not speak the same language. Bliss's system of communicating was eventually used as a means of communication for the disabled. Following are some examples of Blissymbols:



man	woman	time	roof	house	stairs	chair	table	bed	ear	eye	nose	hand

2. Explain how Rachel Zimmerman invented a new way to use Blissymbols to communicate.

Compare your response with the one on page 52.

Journal Entry 3N

In your journal, respond to the article by answering questions 1.b. and 1.c. on page 104 of *Crossroads 7*.

Go to page 6 of Assignment Booklet 3B and respond to question 7 of Section 2.

In this lesson you discussed female inventors. In the next lesson you will review how to conduct research, and you will complete a research report of your own.

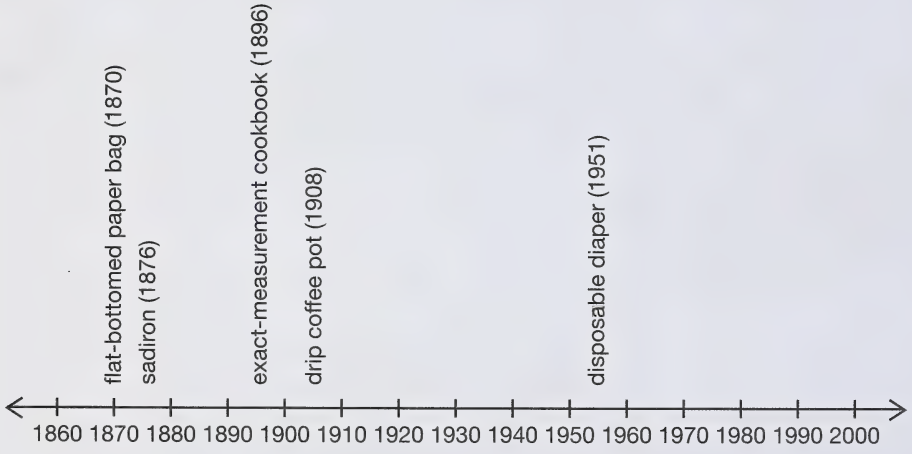
Glossary

Blissymbols: simple pictorial symbols that can be read in all languages—without translation

Suggested Responses

1. **a.** The inventions are all related to duties that a housewife and mother would perform.

b.



c. In the twentieth century the scope of women's inventions widened because women began to attend university and take jobs outside the home.

d. The article mentions the following female inventors:

- Marie Curie who invented a process for extracting radioactive material from uranium ore
- Kate Gleason who invented mass-produced housing
- Stephanie Kwolek who invented a fibre used in radial tires and bullet-proof vests
- Patsy Sherman who co-invented Scotchgard ™ water-and-stain-repellant coating
- Barbara Askins who invented a way to obtain clearer pictures from old negatives
- Lady Mary Montague who introduced to England the Turkish practice of inoculating healthy children with a weakened strain of smallpox to confer immunity from the more virulent strains of the disease
- Dr. Lise Meitner who discovered and named nuclear fission
- Professor Mary Anne White who invented a new class of heat-storage chemicals
- Carolyn Gelhorn who invented Trip Trak, which collects data on automobile trips
- Leslie Dolman who invented a device to allow people with disabilities to more easily use computers

2. Rachel Zimmerman invented a computer program that used Blissymbols. With Rachel's Blissymbol printer, communication can take place over a distance and information can be stored on the computer.

Image Credits

All images in this lesson were created by or for Alberta Education with the following noted exceptions:

Page
49 **all:** Photodisc/Getty Images
51 **top:** Photodisc/Getty Images

Lesson 5: "How to Conduct Research"

In Lesson 1 you read an article about students who conducted research for the ExploraVision contest. In this lesson you will explore how to conduct research and you will complete a research report of your own.

Research reports are an important way of gathering and sharing information on specific subjects. The process of putting together a research report can be an interesting and rewarding experience.

Turn to page 86 of *Crossroads 7* and read "How to Conduct Research."

1. What are the stages of a research project?

Compare your response with the one on page 55.

For more information on defending your topic and planning your report, view Segment 11 on the *English Language Arts 7 Multimedia* CD.

2. What are some of the questions you should ask yourself to help you find a suitable focus or slant for your report?

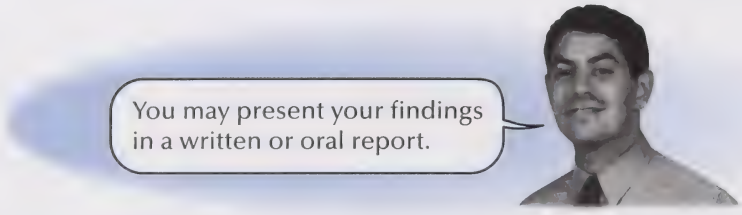
Compare your response with the one on page 55.

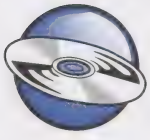
For more on collecting information and recording your findings, view Segments 12 and 13 of the *English Language Arts 7 Multimedia* CD.

3. How do you decide if information is useful for your report?

4. List some of the suggestions for collecting information.

Compare your responses with those on page 55.





To learn more about organizing information and putting together your report, view Segment 14 of the *English Language Arts 7 Multimedia* CD.

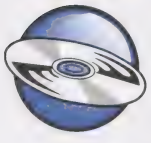
5. What **analogy** does the video clip use for building a report?

analogy: a comparison based on similarity between things that are otherwise dissimilar

Compare your response with the one on page 56.

For more on written research reports, read "The Writing Process" on pages 92 to 114 in the *English Language Arts Handbook*. Also read pages 130 to 135.

For information on presenting an oral report, view Segment 15 of the *English Language Arts 7 Multimedia* CD.

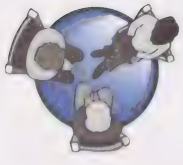


6. What suggestions does the video clip give for presenting your oral report?

Compare your response with the one on page 56.

Following are some tips for preparing an effective oral presentation:

- Prepare appealing audiovisual material to accompany your presentation.
- Ensure that the visuals are large enough for your audience to see.
- Ensure audio recordings are loud and clear enough to be heard.
- Write your information in point form and in large print on cue cards.
- Mark your notes to remind yourself where to use visuals or props.
- Know your subject thoroughly and be prepared to answer questions.
- Rehearse your presentation to ensure it flows smoothly.



7. With a partner or small group, brainstorm ideas for some audiovisual materials you could use to make your presentation a success.

Compare your response with the one on page 56.

Go to page 6 of Assignment Booklet 3B and respond to question 8 of Section 2.

In this lesson you reviewed how to conduct research and prepare a research report. Then you applied what you learned by researching a technology or invention that interests you.

Glossary

analogy: a comparison based on similarity between things that are otherwise dissimilar

Suggested Responses

1. A research project involves the following stages:

   - Define your topic.
   - Plan your research.
   - Collect information.
   - Record your findings.
   - Organize your information.
   - Put together the pieces of your report.
   - Present your report.

2. You can ask yourself questions such as the following:

   - What do I already know?
   - What do I want to find out?
   - Where can I find the information?
   - Who is my audience?

3. Consider whether the author or person you are interviewing is credible. Also consider whether the information is current, is reliable, and meets your needs.

4. Following are some of the suggestions for collecting information:

   - Preview each text. Look at the table of contents and the index to decide if it is useful.
   - Check the copyright page to see if the material is current.
   - Check the source to decide if the author is credible.
   - Make notes and photocopy passages you will need later. Similarly, bookmark websites and print excerpts you will need later.
   - Keep track of the sources of your information (author, title, date, publisher or website location).

5. The video clip compares building a report to building a sandwich.

6. The video clip emphasizes that you should try to make your oral presentation a real event and engage your audience. For example, you can use audiovisual materials such as dioramas. You can also use humour.

7. Following are some audiovisual materials you could use to make your oral presentation a success:

   - bulletin boards
   - cartoons
   - charts
   - costumes
   - diagrams
   - dioramas
   - displays and exhibits
   - dramatic presentations
   - large-scale drawings
   - maps
   - models
   - music
   - overhead transparencies
   - photographs
   - posters
   - PowerPoint® presentations
   - slide show with sound
   - tape recordings
   - videos
   - whiteboard

Image Credits

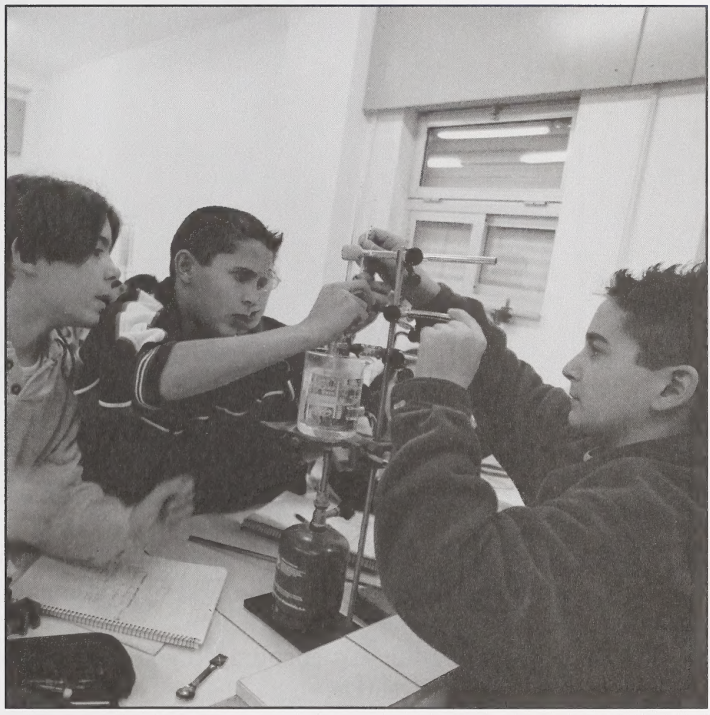
All images in this lesson were created by or for Alberta Education with the following noted exceptions:

Page

53 **top:** Photodisc/Getty Images
centre: © 2003–2004 www.clipart.com
54 Photodisc/Getty Images
55 Photodisc/Getty Images

Section 2

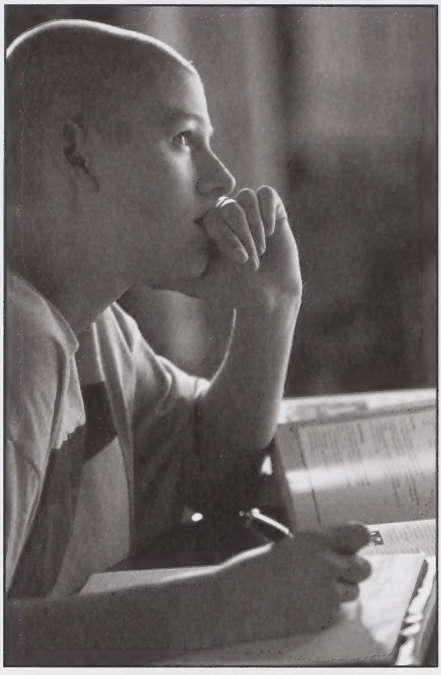
Conclusion



In this section you read about many inventions and inventors. In Lesson 1 you read "A Spider for the Bones" and thought about research, teamwork, storyboards, and compound words. In Lesson 2 you read "Cyberspace Sam" and explored stereotypes, Internet etiquette, and effective communication. In Lesson 3 you focused on Canadian inventors. In Lesson 4 you focused on female inventors. In Lesson 5 you reviewed how to conduct research and prepare a research report. Then you researched a technology or invention that is relevant to your life and reported on your research.

You discovered that inventors are ordinary men, women, and children who are able to think outside the box and solve problems. Did any of the people you read about inspire you to become an inventor?

Module Summary



In this module you read about people who think outside the box, colour outside the lines, and march to the beat of a different drummer.

Hopefully, the module has encouraged you to solve problems, experiment, be curious, and be creative.

Go to page 9 of Assignment Booklet 3B and complete the Final Module Assignment.

© 2005